

## **BRS COMETA: A CARIOCA GRAIN TYPE COMMON BEAN CULTIVAR WITH ERECT GROWTH HABIT**

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Common bean is considered to be the Brazilian's people basic protein food, who regionally demands, besides the culinary quality, also different grain color and type. Actually, the Brazilian's dry bean consumption is about 79% of carioca, 17% of black and 4% of other grain types. These beans are produced mostly in the Southern, Southeast and Center-west regions. To attend this demand, the 2006 bean production was about 3,0 million of tons cultivated in an area of 2,9 million hectares, meaning a national average productivity of 1034 kg/ha. If on one side the productivity has been growing, the consumption per capita has been decreasing, resulting in an average estimate of annual consumption, in 2006, of 12,7 kg/inhabitant. The bean breeding program, at Embrapa Rice and Beans, is focused on more productive, disease resistant and erect plant type cultivars. The latest characteristic has the objective to favor bean mechanical harvesting providing farmers to offer to consumers a product with superior quality.

BRS Cometa is originated from the cross A 769 /4/ EMP 250 /// A 429 / XAN 252 // C 8025 / G 4449 /// WAF 2 / A 55 // GN 31 / XAN 170, performed at Centro Internacional de Agricultura Tropical (CIAT), Colombia. In 1994, Embrapa Rice and Beans received from CIAT the F<sub>1,3</sub> families. From F<sub>3</sub> to F<sub>5</sub>, using the bulk method, plants were selected based on the carioca grain type, erect plant type and resistance to angular leaf spot, rust and anthracnose. In F<sub>6</sub>, individual plants were selected based on yield, adaptation, erect plant type, resistance to common bacterial blight and carioca grain type. In F<sub>7</sub>, line LM 98202147 were selected based on yield and plant type. In 1999 and 2001 this line was tested in the Carioca Preliminary Trials and in the National Trial, respectively, in seven different environment in the states of Goiás (1), Minas Gerais (2), Rio de Janeiro (1), Sergipe (1), Paraná (1) and the Federal District (1). Based on the results obtained by the yield joint analyses and other cultural characteristics, line LM 98202147 were evaluated, in 2003 and 2004 with 11 other lines and 4 controls, in the Use and Cultivation Values trials, with the pre-commercial name of CNFC 9435, in 77 different environment in the states of Goiás (24), Tocantins (7), Mato Grosso (4), Mato Grosso do Sul (4), Sergipe (6), Alagoas (1), Bahia (1), São Paulo (6), Paraná (10), Santa Catarina (10) and Federal District (4).

*In the 77 VCU Trials accomplished during 2003 and 2004, cultivar BRS Cometa yielded as much as the cultivars Iapar 81 and Carioca Pitoco (Table 1).*

BRS Cometa presented a uniform color and grain size, 100 seed weight of 24,6g and a cooking time of 33m (Table 2). Under artificial inoculation BRS Cometa was resistant to bean common mosaic virus and to pathotypes 55, 95 and 453 of *Colletotrichum lindemutianum*. In the field it was susceptible to angular leaf spot and bean golden mosaic virus and showed an intermediary reaction to rust and common bacterial blight.

BRS Cometa presents an erect plant type with good lodging resistance and a crop cycle of 78 days from emergence to physiological maturity. Due to its erect plant type, yield potential, excellent cooking quality, disease and lodging resistance, the cultivar BRS Cometa is another options to farmers that intend to produce a carioca grain type in the wet and dry seasons in the state of Santa Catarina and Paraná, in the wet season in the state of São Paulo, Bahia, Sergipe and Alagoas, in the dry and winter seasons in the state of Mato Grosso and Mato Grosso do Sul, in the winter season in the state of Tocantins and in the wet, dry and winter seasons in the state of Goiás and Federal District.

#### Institutions involved in the cultivar evaluation:

Embrapa Cerrados-DF; Embrapa Soja-PR; Embrapa Agropecuária Oeste-MS; Empresa de Pesquisa Agropecuária e Extensão Rural de Mato Grosso-MT; Embrapa Tabuleiros Costeiros-SE; Embrapa Negócios Tecnológicos-PR; Agência Goiana de Desenvolvimento Rural e Fundiário-GO; Fundação de Ensino Superior de Rio Verde-GO; Centro Federal de Educação Tecnológica (GO); Avena S/C Ltda. - Major Vieira-SC; Cooperativa Regional Agropecuária de Campos Novos (SC); C. Vale Cooperativa Agroindustrial-SC; Escola Agrotécnica Federal de Concórdia-SC; Cooperativa dos Produtores de Sementes de Laranjeiras do Sul Ltda-PR; Sementes Campo Verde-PR; Universidade Estadual de Londrina-PR; Cooperativa Agrícola Mista de Prudentópolis-PR; Detec Assessoria Técnica S/C Ltda-SP; Anastácio Ceregatti Sanchez Ltda-SP; Cooperativa Regional Agropecuária de Taquarituba-SP; Empresa Baiana de Desenvolvimento Agrícola-BA.

**Table 1.** Yield of BRS Cometa according to region/state compared to the average control in VCU Trials, during 2003 and 2004.

Region	State	Season	BRS Cometa (kg/ha)	Control <sup>1</sup> (kg/ha)	Relative yield (%)	Environment
South	SC/PR	“wet”	2219	2442	91,4	12
		“dry”	2213	2174	100,3	8
Southeast	SP	“wet”	2749	3074	89,1	6
		“wet”	2061	2042	107,4	12
Center-west	GO/DF	“dry”	1369	1396	98,4	4
		“winter”	2304	2546	90,2	12
	MT/MS	“dry”	1451	1570	92,8	6
		“winter”	2292	2541	91,6	2
North	TO	“winter”	1717	2118	88,6	6
Northeast	BA/SE/AL	“wet”	2083	2205	95,8	8
Average			2086	2244	95,3	

<sup>1</sup>Iapar 81 and Carioca Pitoco.

**Table 2.** Bean quality test of cultivar BRS Cometa compared to both controls<sup>1</sup>.

Cultivar	Cooking time (min.)	Protein (%)	100 seed weight (g)
BRS Cometa	33	22,2	24,6
Carioca Pitoco <sup>1</sup>	36	-	20,4
Iapar 81 <sup>1</sup>	29	22,5	25,1